E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898
CENTRAL RESEARCH & DEVELOPMENT DEPARTMENT

HASKELL LABORATORY
FOR
TOXICOLOGY AND INDUSTRIAL MEDICINE

(carbon copies listed on page 3)

AR226-1569

May 6, 1981

PERSONAL & CONFIDENTIAL

MEMO TO: H. E. SERENBETZ
PPD, MONTCHANIN 642

FROM : C. F. REINHARDT, MD, CR&D, HASKELL CFR
B. W. KARRH, MD, ERD, N-11400 BWK

FC-143
(Ammonium perfluorooctanoate; C-8; CAS-3825-26-1)
Ref.: CFReinhardt & BWKarrh to HESerenbetz, "FC-143," dated 4/10/81.

The reference memo describes a pilot study by 3M in which FC-143 caused abnormal eye lenses in rat fetuses. The memo recommends "that women of childbearing capacity be removed from jobs where it has been demonstrated that there is potential for exposure to FC-143 and blood levels of FC-143 are above defined background levels (0-0.4 ppm). Areas where the employees have blood levels of organic fluorine in the background range and where the airborne concentration of FC-143 is in compliance with our provisional acceptable exposure limit of 0.01 mg/m^3 should present no significant risk to the fetus."

Originally we estimated blood concentrations of FC-143 by an imprecise measurement of total organic fluorine. The background concentration of organic fluorine, determined by measuring it in the blood of Wilmington office workers, was 0-0.4 ppm (as fluorine). Subsequently a method for measuring the blood level of FC-143 itself was developed. It is sensitive to about 0.004 ppm (4 ppb), as fluorine. It was presumed that background levels by either method would give values in the same range. However, initial measurements of Wilmington office workers indicate that the background level of blood FC-143 is below the level of detection, that is, less than 0.004 ppm. The question has arisen whether the acceptable blood level for female employees (0.4 ppm) should be lowered to the detection level of FC-143 (0.004 ppm).

EID096478

BWK000118

We advise against this step because our information is limited.

1. *The evidence that FC-143 is a teratogen in the rat is inconclusive. Teratogenic tests meeting current standards are being carried out by 3M and Du Pont and results should be available by Q3-81.*

2. *Even if the preliminary 3M study is assumed to demonstrate teratogenicity, it is inadequate for setting acceptable exposure standards. The current animal studies should provide a basis for establishment of acceptable workplace standards. The human data now being collected should also help in setting standards.*

3. *Because of the unusual difference between male and female rats in their rate of excreting FC-143, the rat may not be the best model for man. A better model is being sought.*

4. *We need many more measurements before we can say that the background level of FC-143 in the population of the U.S. women is less than 0.004 ppm.*

5. *FC-143 has been in use for decades without apparent adverse effects in humans.*

We recommend that our acceptable blood level of 0.4 ppm not be changed until we have more definitive information. We should have enough information for a decision in a few months. The departments have already taken significant steps to lower exposure to FC-143. A few months, particularly with lowered exposure, should not significantly extend the hazard of a substance that has been in use for many years.

J. R. Gibson, Director of Health and Safety, concurs with our conclusions.

CFR/BWK/bjd

cc's to: J. R. Gibson, Admn, D-9058
W. E. Tatum, Admn, D-9064
F. E. French, Jr., C&P, B-17249
A. L. Dade, F&F, B-2202
A. C. Haven, Intl, D-3047
G. A. Hapka, Legal, B-13373
C. C. Griffith, Photo, RSQ-210
J. T. Smith, PPD, D-12008
J. L. Stowell, PA, D-8112
R. L. Rhodes, Fibr, N-4448
H. E. Simmons, Jr., CR&D, D-6036
B. C. McKusick, CR&D, Haskell
J. G. Aftosmis, CR&D, Haskell